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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE,

In re Application of: Scott Paul Gary   Docket No.: TI-31759

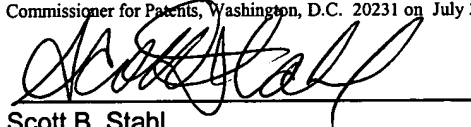Serial No: 09/822,748

Filing Date: March 30, 2001

For: USING REMOTE PROCEDURE CALLS TO MANAGE CO-PROCESSOR
        RESOURCES

LETTER TO THE OFFICIAL DRAFTSPERSON

Commissioner for Patents
Washington, D.C. 20231

> MAILING CERTIFICATE UNDER 37 C.F.R. §1.8(A)
> I hereby certify that this correspondence is being deposited with the U.S.
> Postal Service as First Class Mail in an envelope addressed to:
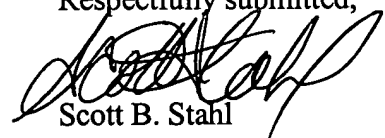> Commissioner for Patents, Washington, D.C. 20231 on July 3, 2001.
>
> Scott B. Stahl

Dear Sir:

Please find enclosed 7 sheets of formal drawings (Figs. 1-17) for the above referenced

application.

If you have any questions please contact the attorney below.

Respectfully submitted,

Scott B. Stahl
Reg. No. 33,795

Scott B. Stahl
Jackson Walker L.L.P.
2435 North Central Expressway, Suite 600
Richardson, Texas 75080
Phone: (972) 744-2916
Fax: (972) 744-2909

2685559

SPEECH

AUDIO

MODEM

REAL-TIME TASKS

CONTROL MESSAGES

DATA STREAMS

RM SERVER

DSP RTOS

OTHER DRIVERS

HOST DRIVER

DSP

MEMORY

15

MEDIA SERVICE MODULES

MEDIA APIs

SPEECH

AUDIO

MODEM

RESOURCE MANAGER

DSP DRIVER

OS ADAPTOR

GENERAL-PURPOSE PROCESSOR (GPP)

MMI

APPLICATIONS

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OS KERNEL

USER

FIG. 1

NODES

MESSAGES

N1

N2

N3

N4

TO GPP

MESSENGER

RM SERVER

DISPATCHER

CONTROL:
CREATE,
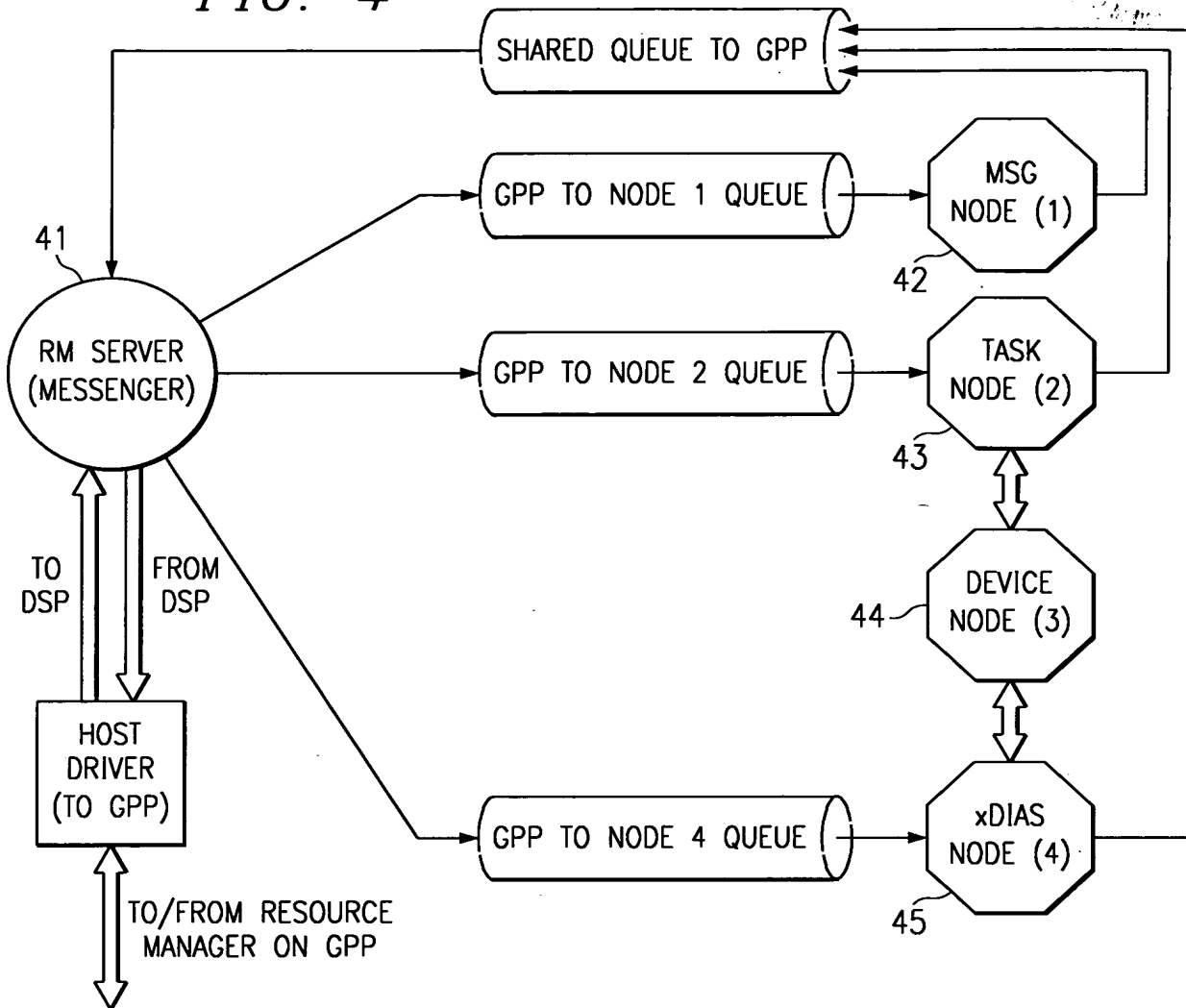EXECUTE,
DELETE NODES

FIG. 2

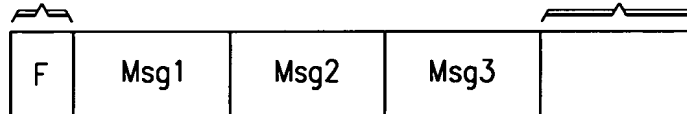| SERVER FUNCTION	PURPOSE
RMS_queryServer	ALLOW GPP TO QUERY SERVER INFORMATION
RMS_configureServer	ALLOW GPP TO SET SERVER CONFIGURATION PARAMETERS
RMS_createNode	CREATE A MESSAGE, TASK, OR xDAIS SOCKET NODE
RMS_executeNode	LAUNCH A NODE INTO ITS EXECUTE PHASE
RMS_deleteNode	DELETE A NODE'S RESOURCES
RMS_changeNodePriority	CHANGE EXECUTION PRIORITY OF A NODE
RMS_readMemory	READ A WORD OF DSP MEMORY
RMS_writeMemory	WRITE A BLOCK OF DSP MEMORY

FIG. 3

FIG. 4

SHARED QUEUE TO GPP

GPP TO NODE 1 QUEUE

MSG NODE (1)

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RM SERVER (MESSENGER)

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GPP TO NODE 2 QUEUE

TASK NODE (2)

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TO DSP   FROM DSP

DEVICE NODE (3)

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HOST DRIVER (TO GPP)

GPP TO NODE 4 QUEUE

xDIAS NODE (4)

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TO/FROM RESOURCE MANAGER ON GPP

CONTENT FLAG: NON-ZERO =
NUMBER OF MESSAGES IN BUFFER

UNUSED SPACE

| F | Msg1 | Msg2 | Msg3 | |

MESSAGE CONTENTS:
Cmd
Arg1
Arg2
NODE ENVIRONMENT

FIG. 5

CONTENT FLAG:
0 = COMMAND   UNUSED SPACE

F	COMMAND	

MESSENGER COMMAND
(FOR FUTURE USE)

FIG. 6
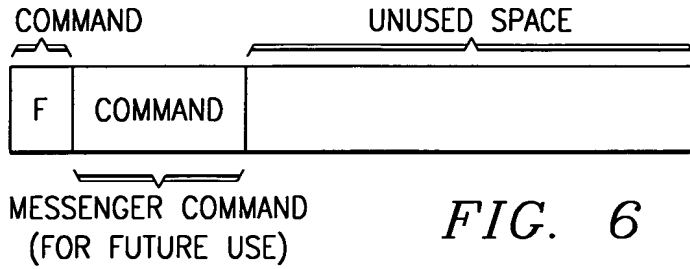
CONTENT FLAG:
0 = NON-MESSAGE BUFFER

F	RESPONSE	

RESPONSE FLAG: ERROR CODE,
OR COMMAND RESPONSE

FIG. 7

SHARED QUEUE TO GPP

RM SERVER
(MESSENGER)

SEM$_1$
NODE$_1$ QUEUE → N$_1$

SEM$_n$
NODE$_n$ QUEUE → N$_n$

FIG. 8

FREE MSG POOL (QUEUE)

FIG. 9

MESSAGE FRAME	PREVIOUS
	NEXT
	Cmd
	Arg1
	Arg2
	NODE ENVIRONMENT
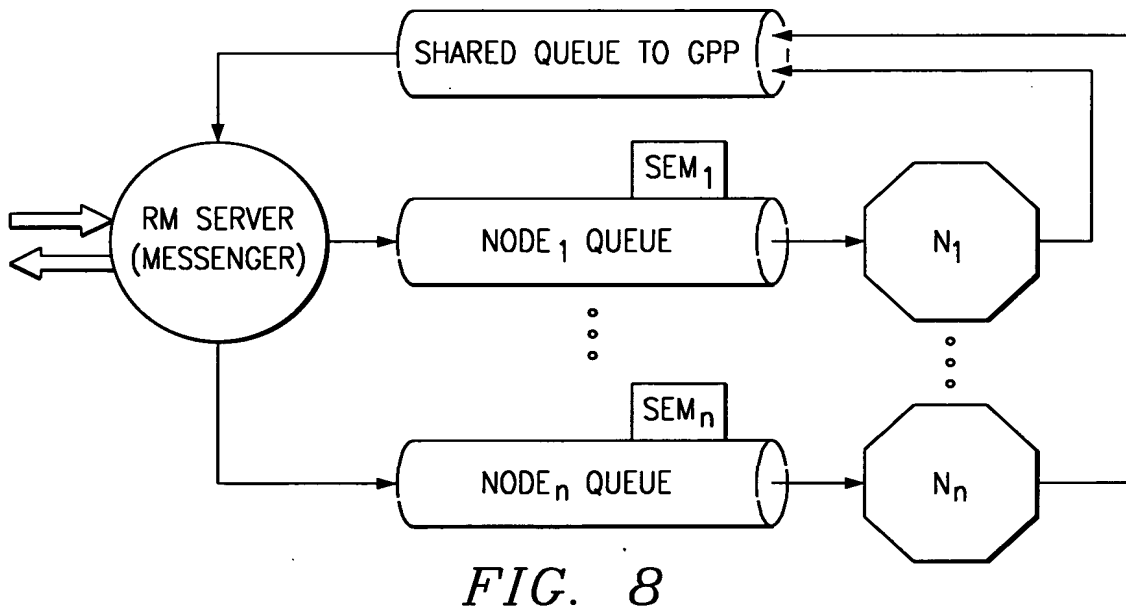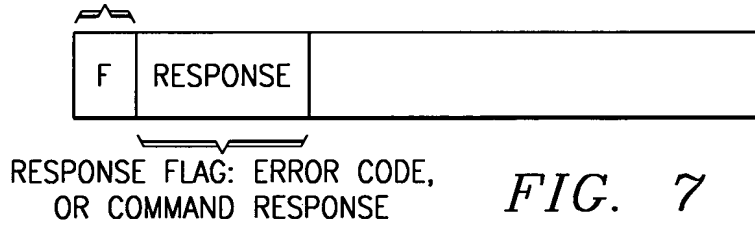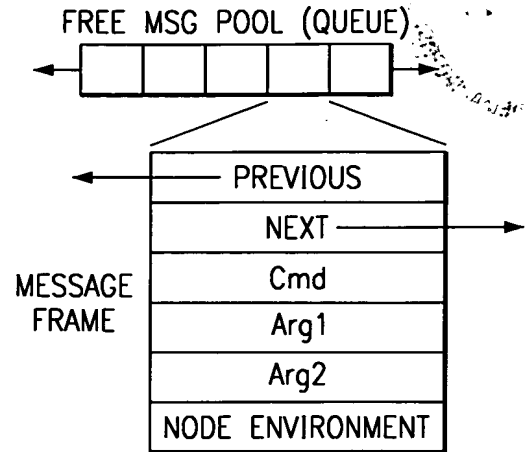
FIG. 10
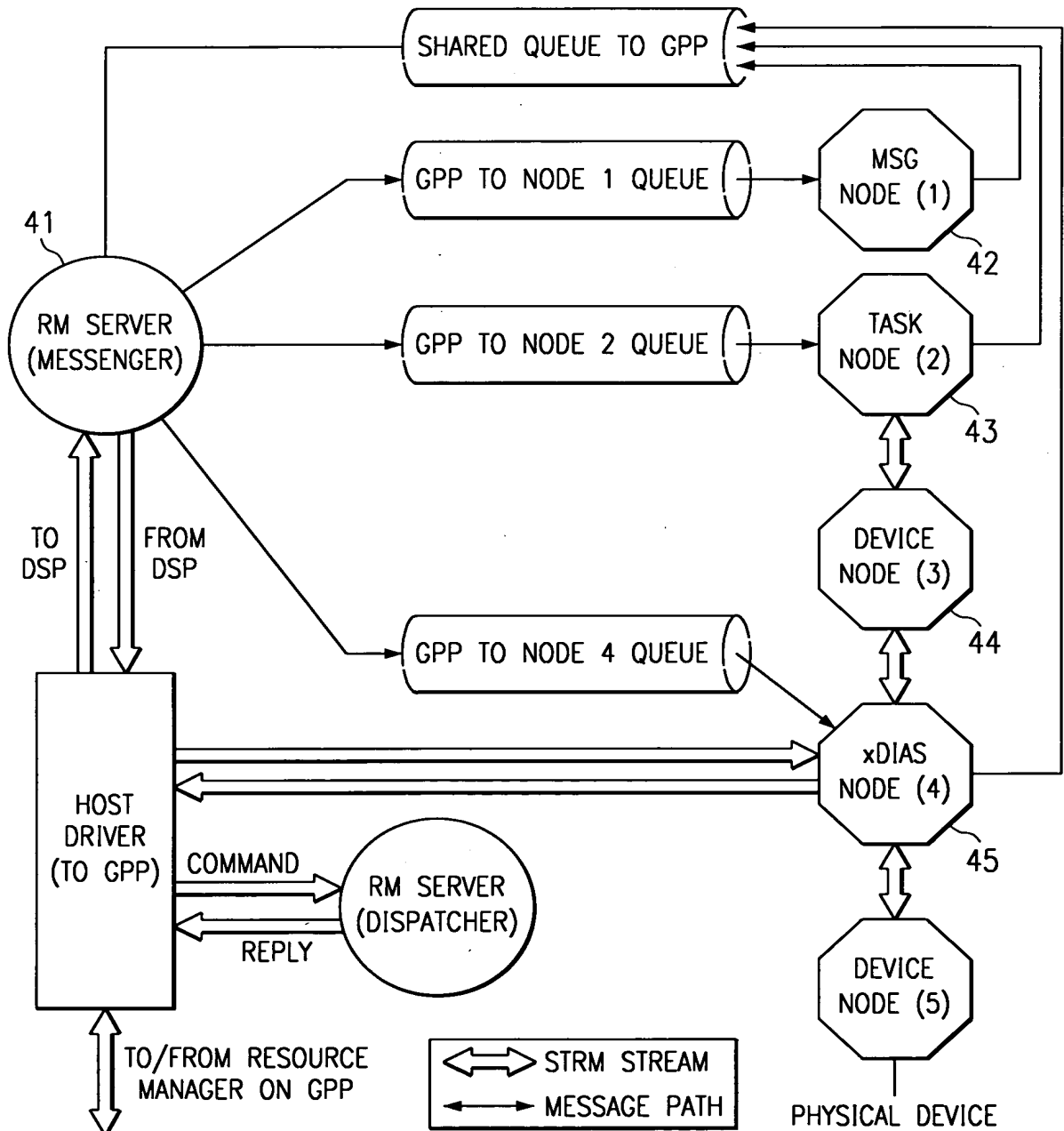
COMMAND FIELD (32-BITS)	CONTENTS
fxn	ADDRESS OF SERVER FUNCTION TO EXECUTE
arg1	SERVER FUNCTION ARGUMENT 1
arg2	SERVER FUNCTION ARGUMENT 2
data[]	FUNCTION-SPECIFIC DATA ARRAY

FIG. 11

REPLY FIELD (32-BITS)	CONTENTS
RESULT	NODE OR SERVER FUNCTION RETURN CODE
arg1	COMMAND-SPECIFIC RETURN ARGUMENT 1
arg2	COMMAND-SPECIFIC RETURN ARGUMENT 2

FIG. 12

SERVER FUNCTION	RESULT	arg1	arg2
RMS_queryServer	QUERIED VALUE	–	–
RMS_configureServer	SUCCESS/FAIL RETURN CODE	–	–
RMS_createNode	nodeCreate RETURN CODE	NODE ENVIRONMENT PTR	–
RMS_executeNode	nodeExecute RETURN CODE, OR COMMAND ACK	–	–
RMS_deleteNode	nodeDelete RETURN CODE	–	–
RMS_changeNodePriority	SUCCESS/FAIL RETURN CODE	–	–
RMS_readMemory	MEMORY CONTENTS	–	–
RMS_writeMemory	SUCCESS/FAIL RETURN CODE	–	–

FIG. 13

FIG. 14

RETURN CODE	ENUMERATED VALUE	MEANING
RMS_EOK	0	OK, NO ERROR
RMS_EOUTOFMEMORY	1	MEMORY ALLOCATION FAILURE
RMS_EMEMFREE	2	MEMORY DE-ALLOCATION FAILURE
RMS_EOUTOFIO	3	I/O ALLOCATION FAILURE
RMS_EIOFREE	4	I/O DE-ALLOCATION FAILURE
RMS_ERESOURCE	5	A RESOURCE WAS UNAVAILABLE
RMS_ENOTFOUND	6	SYMBOL OR MODULE NOT FOUND

RPC PACKET
STRUCTURE

USAGE WHEN DOING
RMS_writeMemory

fxn	→ RMS_writeMemory FUNCTION ADRRESS
arg1	→ DESTINATION ADDRESS ON DSP
arg2	→ DESTINATION MEMORY SPACE ON DSP
START OF DATA	→ NUMBER OF MEMORY ELEMENTS TO WRITE
	FIRST ELEMENT TO WRITE
	SECOND ELEMENT TO WRITE

FIG. 15

FIG. 16

GPP — NETWORK INTERFACE 202 — DATA NETWORK 200 — NETWORK INTERFACE 201 — DSP

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FIG. 17

PROVIDE DOWNLOAD FUNCTION IN DSP MEMORY ⌐210

USE RPC TO INVOKE DOWNLOAD FUNCTION ⌐211

USE RPC TO INVOKE NEW/REPLACEMENT FUNCTION ⌐212